

Customer No.: 31561
Application No.: 10/065,355
Docket No.: 9112-US-PA

REMARKS

Present Status of Application

Claims 1-6 remain pending in the application. The Office Action mailed July 25, 2003, objected to the title for not being descriptive. Claims 1-2 and 5-6 were rejected under 35 USC§102(e) as being anticipated by Ciavatti (US Patent Application Publication No. 2002/0126548 A1). Claims 3-4 were rejected under 35 USC§103(a) as being unpatentable over Ciavatti et al. in view of further remarks.

Claim 1 has been amended, while a new title has been provided as suggested by the Office Action. No new matter has been added to the application by the amendments made to the specification, claims and drawings. This Amendment is promptly filed to place the above-captioned case in condition for allowance. After entering the amendments, a notice of allowance is respectfully solicited.

Discussion of objection for the specification

The title was objected as not being descriptive. The Office Action suggested a new title "Memory structure with composite buried and raised bit line".

Applicants would like to thank the Office Action for the careful review. A new title "Memory device structure with composite buried and raised bit line" is proposed, based on the suggestion of the Office Action.

Withdrawal of this objection is respectfully requested.

Discussion for 35 USC§102 and 103 rejections

Claims 1-2 and 5-6 were rejected under 35 USC§102(e) as being anticipated by

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Ciavatti (US Patent Application Publication No. 2002/0126548 A1). Claims 3-4 were rejected under 35 USC§103(a) as being unpatentable over Ciavatti et al. in view of further remarks.

The Applicant has most respectfully considered the remarks set forth in the Office Action. According to the suggestions of the Office Action, claims 1 has been amended to provide more descriptions for clarification according to the present invention. The supporting grounds for this amendment can be found in Figs. 2D-2G and from the specification page 5, lines 19-page 6, lines 2. As amended, independent claims clearly recite respectively:

*1. A memory device structure, comprising:
a substrate;
a gate oxide layer disposed on a portion of the substrate;
a gate disposed on the gate oxide layer, wherein the gate and the gate oxide layer form a gate structure;
a buried bit line disposed in the substrate along both sides of the gate;
a raised line disposed on the buried bit line;
a spacer disposed on both sidewalls of the gate structure, thus electrically isolating the gate and the raised line, wherein a top of the raised line is lower than a top of the spacer;
a word line disposed on the gate in a direction perpendicular to the buried bit line; and
an insulation layer disposed on the top of the raised line to electrically isolate the word line and the raised line.*

Obviously, Ciavatti fails to disclose the raise line disposed on the buried bit line and the top of the raised line is lower than the top of the spacer. From Ciavatti's Fig. 3C, the conductive material 18 that is formed in the layer 11 and in contact with the common source/drain region 9 clearly has a top much higher than the insulating spacers 8, even if

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considering the insulating spacer 8 and the conductive material 18 of Ciavatti's are comparable to the spacer and the raised line of this invention, as suggested by the Office Action.

Further, Ciavatti does not teach or suggest the word line disposed on the gate in a direction perpendicular to the buried bit line or the insulation layer disposed on the top of the raised line to electrically isolate the word line and the raised line. In fact, Ciavatti teaches the conductive structures consisting of the thin dielectric layer 7 and the conductive layer 13 form word lines WL1-4 [0049]. Hence, Ciavatti's word lines are formed on the substrate 2 (as shown in Figs. 3A-3D) and cross the memory plane. Moreover, Ciavatti merely discloses layer 19 disposed on the insulating layer 11 and above the conductive material 18 for maintaining the planarity of the structure.

As a result, Applicant submits that amended claim 1 patently defines over the prior art and the cited reference. For at least the foregoing reasons, all pending claims patently define over the cited references and should be allowed.

Regarding the rejection under 35 USC 103(a), the Applicants submit that dependent claims be patentably distinguishable over the cited references for at least the same reasons as the independent claim 1, from which these claims respectively depend, as well as for the additional features that these claims recite.

In view of the above amendment and discussions, reconsideration and withdrawal of the 102 and 103 rejections are respectfully requested.

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CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

Date :

Sept. 30, 2003

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